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error which should have been corrected before now. On page 1152, referring to the Ornithopoda he says: "The ilium generally has its preacetabular process much elongated, although this is not the case in the type of *Camptosaurus;*" and on page 1158, "The posterior portion of the ilium of this species [*Iguanodon fittoni*] is indeed almost indistinguishable from that of *Camptosaurus.*" If one will compare the figure of the pelvis of *Camptosaurus dispar* on page 1153 with that of *Iguanodon dawsoni* on page 1158, he will be struck with the strong resemblance throughout, except of the anterior portion of the ilium." The fact is that the figure of the former is wrong. The anterior portion of the ilium of the type had been broken off and weathered, indications of which are distinctly seen in the specimen. Prof. Marsh had this demonstrated to him more than five years ago, and there are other ilia in the Yale Museum in which this process is complete. It is to be hoped that this figure will be banished from text-books in the future, and that no new genus will be made on the supposition that the process is wanting.—S. W. WILLISTON.

BOTANY.

The Assimilation of Carbon by Green Plants from Certain Organic Compounds.—Under this title Mr. E. Hamilton Acton publishes in the Proceedings of the Royal Society (Vol. XLVII., p. 150) the results of an interesting series of experiments made by him to determine whether it can be produced in the assimilating cells of green plants when supplied with certain organic compounds, in the absence of carbon dioxide from the air. The following summary will give the essential parts of the paper.

The apparatus used consisted of a tall bell-jar, perforated at the top, and accurately ground at the bottom. Into the top an india-rubber stopper was accurately fitted, and through this were passed two bent glass tubes, each leading to a U tube filled with soda-lime. Inside of the bell-jar were placed a glass culture cylinder, a small dish of soda-lime, a couple of dishes of water, and a test-tube filled with a solution of caustic potash. The bell-jar was set upon a glass plate, and the contact was rendered air-tight by the use of a mixture of vaseline, resin and beeswax.

A normal "culture solution" was prepared with the following composition:

Potassium nitrate (KNO_3)	0.15	grams.
Magnesium chloride ($MgCl_2$)	0.10	"
Calcium phosphate ($Ca_3(PO_4)_2$)	0.05	"
Ferrous sulphate ($FeSO_4$)	0.025	"
Calcium sulphate ($CaSO_4$)	0.05	"
Water (distilled)	100.	"

This was placed in the culture cylinder, and to this were added the organic compounds experimented with. The plants used were either cut branches, or plants with roots, and these were supported by a cork in the mouth of the culture cylinder, in the usual way. Applications of the organic compound were also made directly to the surfaces of the leaves of plants.

The plants used were first deprived of all their starch, either (a) by being placed in the dark for a sufficient length of time, or (b) by being placed under the bell-jar described above, where, having no access to carbon dioxide, the same result was obtained with greater convenience. After such preparation they were placed in the culture solution, to which an organic compound had been added. On exposure to light in some cases starch was formed, although all access of carbon dioxide was cut off, thus proving that the plants formed starch by conversion of the organic compounds. The results were as follows:

1. Neither acroleïn nor acroleïn ammonia (C_6H_9NO) were used by the plants. No starch whatever was formed.

2. With allyl alcohol (C_3H_6O) similar results were obtained.

3. With glucose (one per cent. solution) starch was produced in every instance.

4. With aldehyde no starch was formed.

5. With weak solution (0.05 to 10 per cent.) of pure glycerine starch was invariably formed.

6. With lævulinic acid no starch was formed.

7. With pure cane sugar starch was invariably formed.

8. With dextrine no starch was formed.

9. With inulin starch was formed.

10. With "soluble starch"[1] the cut branches formed starch, but those supplied with roots did not.

11. With glycogen no starch was formed.

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[1] Soluble starch was prepared by rubbing wheat starch with cold water into a thin paste, and then pouring it into an excess of boiling water, and boiling for five minutes. On cooling, the solution was filtered through paper, and diluted to a strength of about one per cent.

12. With an extract of natural humus starch was formed in small quantities, in the case of rooted plants; in other cases no starch was was formed.

13. With the humus-like product obtained by the action of alkalies on cane sugar, no starch was formed.

The plants used were chiefly *Acer pseudoplatanus*, *Phaseolus vulgaris*, *Ranunculus acris*, *Cheiranthus cheiri*, *Tilia europæa*, *Alisma plantago*, *Scrophularia aquatica*, *Quercus robur*, *Campanula glomerata*, *Euphorbia helioscopia*, *Lilium candidum*.

The author concludes: "That green plants cannot normally obtain carbon for 'assimilation' from any substances except carbohydrates, or bodies closely related to them, not from aldehydes or their derivatives, and not from all carbohydrates even." "That a compound may be a source of carbon when supplied to the leaves, but not when supplied to the roots, and *vice versa*."

The Yellow Water Crowfoot.—This common plant of the eastern half of the continent, known hitherto under the name of *Ranunculus multifidus* may have to bear the name of *Ranunculus lacustris*, given it by Beck and Tracy in the third edition of Eaton's Manual (1822). Professor Greene, in a recent number of *Pittonia*, points out the fact that this name appears to have priority. He also calls attention to the fact "that no one has yet stated whether *R. lacustris* be annual or perennial," saying farther that "probably nobody knows."

It probably lives for about a year. The seedlings appear late in the autumn along the banks, and on the bottoms of dried up pools, ready to make an early growth in the following Spring. I have never found any evidence of the full grown plants lasting through the winter. Possibly they may do so, in exceptionally mild winters, as is indeed the case with many other plants.—CHARLES E. BESSEY.

Atlas of French Plants.—Some months ago the first number of an important work by A. Masclef, was brought out by a Paris publishing house (Klincksieck,) under the title "Atlas des Plantes de France, utiles, nuisibles et ornamentales." When complete it will include two hundred colored plates, and about three hundred and fifty pages of text, at a cost of fifty francs. The pages and plates are of octavo size, and the latter are very well done. The work will prove a valuable one, especially to experiment station workers.

The Characeæ of Germany.—The fifth volume of the new edition of Rabenhorst's "Kryptogamen-Flora von Deutschland, Oesterreich und der Schweiz," is to be devoted to the Characeæ. The work is in the hands of Dr. W. Migula, of Karlsruhe, and promises to be of great interest and value. Parts I. and II., which have appeared since the first of the present year, are largely devoted to a discussion of general matters. In part II. we have an outline of Dr. Migula's system of classification as applied to the Characeæ. He insists npon their isolated position in the vegetable kingdom, and proposes the name Charophyta for the group, which contains about one hundred and fifty species (and subspecies) in the whole world. These are distributed among six genera, which in turn fall into two sub-families.

CHAROPHYTA.

Family Characeæ.—1. Sub-Family Nitelleæ.—Gen., *Nitella* and *Tolypella*.

2. Sub-Family Chareæ.—Gen., *Tolypelopsis*, *Lamprothamnus*, *Lychnothamnus* and *Chara*.

The German species of *Nitella* number thirteen, nearly all of which are described by the end of Part III. lately received. Good illustrations accompany the full text, and thus give us a most useful work.

ZOOLOGY.

Hoplophoria coralligens.—Is a new Actinian from the Bahamas, described by Dr. H. V. Wilson.[1] Only a single specimen was found. In general structure it was on the ordinary Hexactinian type. The mesenterial filaments were typical, and there were no acontia. The specimen was a female, with ovaries developed on but four mesenteries belonging to the primary cycle. Just beneath the circle of tentacles are four large organs which are diverticula of the gastrovascular space, and which are stinging weapons. These structures are not modified tentacles, but are homologised with the marginal sacs (randäsckchen) which were formerly regarded as eyes in many Actinians. Hoplophoria is regarded as a member of the Antheadæ, in which, besides the points enumerated above, only the six primary mesenteries reach the œsophagus.

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[1] Studies from the Biol. Lab., Johns Hopkins Univ., IV., p. 379, 1890.